

REMARKS

Claim Rejections - 35 U.S.C. §103(a) – Claims 1,3, 5, 6, 8, 10-12, 16, and 18-20

Claims 1,3, 5, 6, 8, 10-12, 16 and 18-20 are pending in the present application and were rejected in the Office action dated February 24, 2004 under 35 U.S.C. § 103(a) as being unpatentable over Scifres et al. (U.S. Patent No. 4,280,107) in view of Mifune et al. (U.S. Patent No. 6,324,149). Applicant respectfully traverses this rejection. No claims have been amended or deleted. No new claims have been added. Claims 1, 8, and 16 are independent claims. Claims 3, 5, and 6 depend, either directly or ultimately, from independent claim 1. Claims 10-12 depend from independent claim 8. Claims 18-20 depend, either directly or ultimately, from independent claim 16. For brevity, only the bases for the rejection of the independent claims are traversed in detail in this response, on the understanding that the dependent claims are also patentably distinct over the prior art as they depend from their respective independent claim. Nevertheless, the dependent claims include additional features that, in combination with those of their respective independent claim, provide further, separate and independent bases for patentability.

The Examiner states that Scifres et al. shows “a semiconductor laser having a beam emitting facet 11 and a light emitting region 38 formed on the beam emitting facet 11. Scifres et al. does not disclose a three-dimensional marker. Mifune et al. teaches a three-dimensional marker being a concavity or a convexity (protrusions and recesses) (col. 13, ll. 44-45). For the benefit of indicating the location of the emitting region, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Scifres a three-dimensional marker as taught by Mifune.”

Respectfully, Applicant does not agree with this assessment. In contrast, Applicant submits that Mifune et al. discloses an optical pick-up device that achieves a desired spot size of a laser beam on a recording surface, and proposes to align a substrate formed with an objective lens and a substrate formed with a hemispherical lens with each other. This is done using a protrusion formed on the one of the substrates and a recess formed on the other substrate in order to achieve a desired spot size of a laser beam (see Figures 19 to 21, 24A and 24B, and the corresponding descriptions). However, in Figure 19 of Mifune et al., the substrate 101 formed with the objective lens 102, and the substrate 1601 formed with the hemispherical lens 1602, are

aligned with each other by fitting a protrusion 1602 formed on the substrate 101 into a recess formed on the substrate 1601, and fitting a protrusion 1603 formed on the substrate 1601 into a recess formed on the substrate 101. Therefore, Mifune et al., merely discloses the mechanical alignment of a substrate formed with an objective lens and a substrate formed with a hemispherical lens with each other. This is accomplished using a protrusion formed on the one of the substrates and a recess formed on the other substrate. Further, in Mifune et al., it is theoretically indispensable to use at least two pairs of protrusions and recesses for mechanically aligning a substrate formed with an objective lens and a substrate formed with a hemispherical lens with each other.

To the contrary, the claimed invention recites a semiconductor laser having a small opening 14 at a region of a light-shielding film 13 covering a laser beam-emitting facet where a light-emitting region is to be formed. A three-dimensional marker that includes at least one of a concavity and a convexity is formed on the laser beam-emitting facet. The position of the light-shielding film 13, at which the small opening is to be formed is accurately identified using the three-dimensional marker as a reference marker. A focused ion beam (FIB) is projected onto the light-shielding film 13, and the small opening 14 thereby is formed.

Therefore, in the claimed invention, the three-dimensional marker, which includes at least one of a concavity and a convexity, is used as a reference marker for identifying a position of the light-shielding film 13 at which a light-emitting region is to be formed. Otherwise stated, the position onto which the focused ion beam (FIB) is to be projected, and the position of the light-shielding film 13 at which a light-emitting region is to be formed, can only be identified by the three-dimensional marker. Accordingly, the position of the light-shielding film 13 at which a light emitting region is to be formed, namely, a portion onto which the focused ion beam (FIB) is to be projected, is not mechanically identified using two pairs of concavities and convexities in contrast to the disclosure of Mifune et al.

Therefore, Mifune et al. and Scifres et al., taken either alone or in combination, do not teach or suggest the claimed invention. Specifically, they do not teach or suggest a three-dimensional marker used as a reference mark for identifying the position of the light-shielding film 13 onto which the focused ion beam (FIB) is to be projected. Accordingly, it is respectfully submitted that the pending claims are not obvious over Scifres et al. in view of Mifune et al.

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In conclusion, Scifres et al. in view of Mifune et al. do not teach or suggest each and every element of the claimed invention. Accordingly, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection has been overcome.

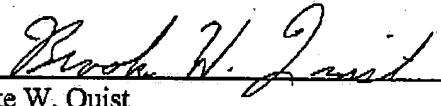
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CONCLUSION

Applicants have made an earnest and bona fide effort to clarify the issues before the Examiner and to place this case in condition for allowance. In view of the foregoing discussions, it is believed clear that the differences between the claimed invention and the prior art are such that the claimed invention is patentably distinct over the prior art. Therefore, consideration and allowance of claims 1,3, 5, 6, 8, 10-12, 16 and 18-20 is believed to be in order, and an early Notice of Allowance to this effect is respectfully requested. If the Examiner should have any questions concerning the foregoing, the Examiner is invited to telephone the undersigned attorney at (310) 712-8319. The undersigned attorney can normally be reached Monday through Friday from about 9:30 AM to 6:30 PM Pacific Time.

Respectfully submitted,

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